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***Endocalyx melanoxanthus* var. *melanoxanthus* (Ascomycota):  
new to Brazil and three new hosts**NADJA SANTOS VITORIA<sup>1\*</sup>, MARIA AUXILIADORA Q. CAVALCANTI<sup>1</sup>,  
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**ABSTRACT** — *Endocalyx melanoxanthus* var. *melanoxanthus* was recovered during a survey of microfungi on palms in Atlantic Rainforest areas of Northeast Brazil. Three new hosts were identified for the fungus, newly reported for Brazil.

**KEY WORDS** — anamorph, biodiversity, Brazilian mycota, palm fungi, taxonomy

**Introduction**

Brazil has one of the richest *Arecaceae* (palm family) diversity in the world, hosting at least 266 species (39 genera), of which 111 are regarded as endemic (Leitman et al. 2010). Although Farr et al. (2011) list about 100 species of microfungi associated with this family for the country, the palm mycobiota remains almost unknown. Silva & Minter (1995) cite 38 ascomycete species on palms in Pernambuco State and only six in Bahia State based on works by Chaves Batista and collaborators. During palm microfungi surveys of Pernambuco and Bahia states along the Brazilian northeastern coast (Vitoria et al. 2008, 2010, 2011; Souza et al. 2008), the fungus *Endocalyx melanoxanthus* var. *melanoxanthus* was found on *Acrocomia intumescens* Drude, *Euterpe edulis* Mart., and *E. oleracea* Mart. This report of the fungus for the first time for Brazil on three new hosts is part of an ongoing project to further knowledge of palm microfungi in the Brazilian Northeast Atlantic Rainforest.

**Materials & methods**

Dead palm leaves were collected in the municipalities of Igarassu, Recife, Cabo de Santo Agostinho, and Tamandaré in Pernambuco State and Uruçuca in Bahia



PLATE 1. Map of the northeastern Brazilian coast with the collecting sites indicated: 1. Municipality of Igarassu: 07°48'56.7"S 34°57'17.3"W, 49 m; 2. Municipality of Recife: 08°00'36.9"S 34°56'57.2"W, 30 m; 3. Municipality of Cabo de Santo Agostinho: 08°14'01.0"S 35°02'49.1"W, 54 m; 4. Municipality of Tamandaré: 08°43'22.8"S 35°10'40.5"W, 109 m; 5. Municipality of Uruçuca: 14°56'132"S 39°16'601"W, 101 m.

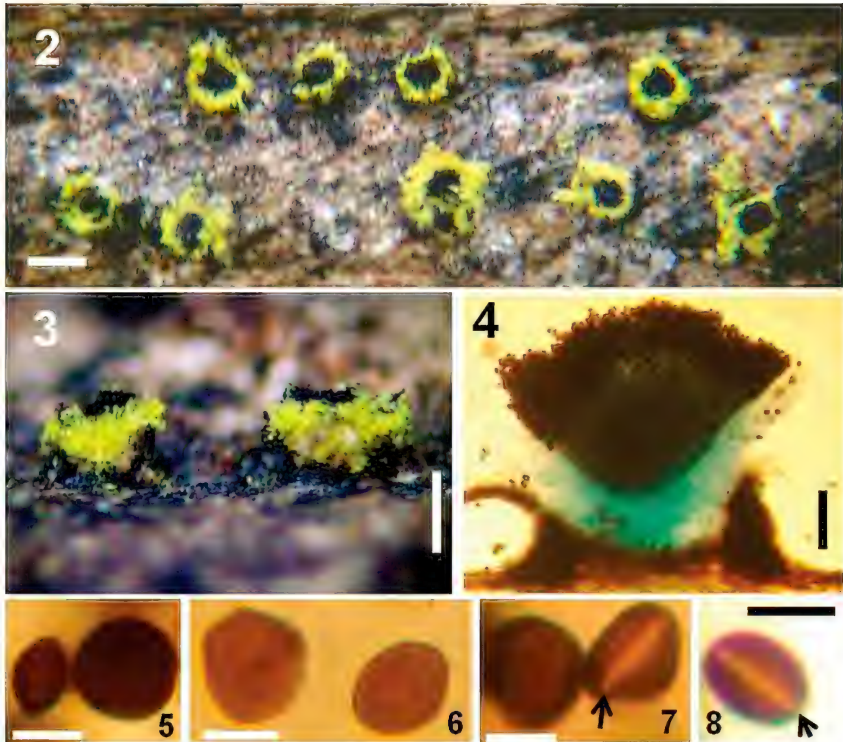
State (PLATE 1). The collected specimens were incorporated into CEPEC Herbarium (Mycological Collection) in Itabuna, Bahia. Observations under the stereomicroscope preceded study of squash preparations and vertical, free hand sections of the conidiomata. Morphological features were described, measured and photographed using a Carl Zeiss microscope. All measurements were made in water preparations. In most cases, the samples were stained with lacto-glycerol cotton blue.

### Taxonomy

*Endocalyx melanoxanthus* (Berk. & Broome) Petch  
var. *melanoxanthus*

PL. 2–8

Conidiomata 0.4–1.0 mm high, up to 0.5 mm diam, yellow, cup-shaped to cylindrical, scattered. Conidiophores up to 2 µm wide, septate, hyaline, thread-like or hyphoid. Conidiogenous cells 1–1.5 µm long, integrated, determinate, unicellular, hyaline, knob-like. Conidia 10.4–17 × 10–15 µm in face view, and



PLATES 2–8. *Endocalyx melanoxanthus* var. *melanoxanthus*: 2–3. Conidiomata on host surface; 4. Section of conidioma; 5–8. Conidia (arrows indicate germ-slits). (Scale bars: 2 = 0.5 mm; 3 = 1 mm; 4 = 100  $\mu$ m; 5–8 = 10  $\mu$ m).

7–9  $\mu$ m in side view (mean =  $13.5 \times 11.5 \times 7.3$   $\mu$ m,  $n = 50$ ), 1-celled, smooth-walled, flattened, round, oval or slightly polygonal in face view, at first pale, dark brown at maturity, solitary, guttulate, with a longitudinal, straight germ slit.

**SPECIMENS EXAMINED** — BRAZIL. PERNAMBUCO: IGARASSU, Refúgio Ecológico Charles Darwin, on dead leaf (rachis) of *Acrocomia intumescens*, 18.VI. 2009, coll. Nadja Vitoria, det. JL Bezerra (CEPEC 2169); RECIFE, Parque Estadual Dois Irmãos, on dead leaf (rachis) of *Euterpe oleracea*, 13. VI. 2009, coll. Nadja Vitoria, det. JL Bezerra (CEPEC 2170); CABO DE SANTO AGOSTINHO, Reserva Ecológica de Gurjaú, on dead leaf (rachis) of *E. oleracea*, 09. VI. 2009, coll. Nadja Vitoria, det. JL Bezerra (CEPEC 2171); 16.XI. 2009, coll. Nadja Vitoria, det. JL Bezerra (CEPEC 2172); TAMANDARÉ, Reserva Biológica de Saltinho, on dead leaf (rachis) of *E. oleracea*, 03. IX. 2010, coll. Nadja Vitoria, det. JL Bezerra (CEPEC 2173). BAHIA: URUÇUCA, EMARC, on dead leaf (rachis) of *E. edulis*, 18. III. 2010, coll. Nadja Vitoria, det. JL Bezerra (CEPEC 2174).

**HOSTS** — *Arecaceae*: *Acrocomia* (this paper), *Archontophoenix*, *Borassus*, *Cocos*, *Elaeis*, *Euterpe* (this paper), *Livistona*, *Oncosperma*, *Phoenix*, *Satakentia*, *Trachycarpus*, *Washingtonia*; *Dipterocarpaceae*: *Shorea*; *Smilacaceae*: *Ripogonum*, *Smilax*.

TABLE 1. Synopsis of conidia of *Endocalyx* species

TAXA	CONIDIA	SOURCE
<i>E. amarkantakensis</i> U.S. Patel et al.	5–10 × 4–5 µm, smooth walled	Patel et al. 2002
<i>E. cinctus</i> Petch	10–13 (–17) × 6–12 × 7–8 µm, verrucose	Okada & Tubaki 1984
<i>E. collantesii</i> J. Mena & Mercado	10–13.5 × 7.5–11.5 × 5–7 µm, smooth	Mena Portales & Mercado Sierra 1984
<i>E. indicus</i> J.N. Kapoor & Munjal	7–10 × 6–8 × 1.5–2 µm, smooth	Kapoor & Munjal 1966
<i>E. indumentum</i> G. Okada & Tubaki	8–12 µm diam, wall ornamented	Okada & Tubaki 1984
<i>E. melanoxanthus</i> [var. <i>melanoxanthus</i> ]	14–19 × 12–14 × 6–7 µm	Petch 1908
<i>E. melanoxanthus</i> var. <i>melanoxanthus</i> (CEPEC 2169)	10.4–17 × 10–15 × 7–9 µm, smooth	This publication
<i>E. melanoxanthus</i> var. <i>melanoxanthus</i>	12–17 × 10–14 × 7–9 (–10) µm, smooth	Okada & Tubaki 1984
<i>E. melanoxanthus</i> var. <i>grossus</i> G. Okada & Tubaki	9–16 × 9–15 × 6–9 µm, verrucose	Okada & Tubaki 1984
<i>E. thwaitesii</i> Berk. & Broome	17–21 × 16–19 µm, verrucose	Okada & Tubaki 1984

DISTRIBUTION — Australia, Brazil (this paper), China, Cuba, Ghana, Hong Kong, India, Jamaica, Japan, Malaya, New Zealand, Pakistan, Papua New Guinea, Philippines, Sabah, Sarawak, Seychelles, Sierra Leone, Singapore, Sri Lanka, Taiwan, USA.

COMMENTS — The genus *Endocalyx* includes seven species, one of which is divided into two varieties (TABLE 1). According to Okada & Tubaki (1984), *Endocalyx* species colonize palm litter or (rarely) vine and lilies. Our report represents the first record of *E. melanoxanthus* for Brazil, and *Acrocomia intumescens*, *Euterpe edulis*, and *E. oleracea* represent new hosts for the species.

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